Introduction

to

Internet

Student Guide

National Institutes of Health
Clinical Center
Information Technology Center

ACKNOWLEDGMENTS

Introduction to Internet

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OVERVIEW

This course will teach the fundamentals of the Internet. You will gain an understanding for terms such as Telnet, FTP, Archie, Gopher, Veronica, WAIS, Finger, and Ping. You will also learn to send Internet mail messages, and use an Internet chat session.

OBJECTIVES

This course will demonstrate how to...

- Access the Internet
- Send Internet electronic mail messages
- Access LISTSERV servers
- Access the Internet Newsgroups
- Access remote computers using Telnet
- Download & upload files from remote computers using FTP
- Locate files & directories using Archie
- Search for & retrieve files using Gopher
- Access computerized archives using Veronica

LESSON 1: INTERNET INTRODUCTION

What is the Internet?

The Internet is a large "network of networks." It is a collection of tens of thousands of computers connected in a tangled web, talking to one another through a common communications protocol.

History of the Internet

The Internet was started as an experiment over 20 years ago by the Department of Defense. This experimental network for the military was called ARPAnet because it was funded by the U.S. Advanced Research Projects Agency (ARPA).

The Military was looking for a system to link all of the mainframe computers in the United States. This network system had to ensure the safety and integrity of the flow of information between the mainframes, not be impaired if sections of the network were damaged, and have the capability of adding and removing nodes easily.

One of the most significant outcomes of the ARPAnet research was the development of today's standard network protocol called ***TCP/IP*** (Transmission Control Protocol/Internet Protocol). This is the language that network computers use to talk with each other. A common protocol is needed since there are usually all types of systems connected on a network.

In the 1970s the ARPAnet started to be used by researchers at universities across the country. Because of the growth in the number of users using the ARPAnet, in 1983 it was split into two separate segments. The military sites and their network became known as MILNET, and the civilian network, which was used mainly for scientific research remained the ARPAnet.

The High Performance Computing Act was signed by President Bush in 1991. This act supports the creation of a national data super highway designated the National Research and Education Network (NREN). One of the main focuses of the NREN is to encourage the continued development of new network technology including standards that will make development consistent among different vendors. Other concentration areas for NREN will consist of ways to make information available while guaranteeing copyright protection, and ways to charge for usage of the network and network facilities.

Future of the Internet

The Information Superhighway is already impacting areas such as business, education and research, and politics. Some of the advantages for each group are outlined below.

Corporate World

- Online newsletters
- Instant communication to all employees no matter the location
- Electronic meetings - sites around the country and even around the world can communicate easily
- Telecommuting - working at home
- Better interaction between businesses and their customers
- Marketing info. and tech support provided over the Net
- Market research conducted on the Internet
- Customer access to multi-media catalogs
- Product problem reports submitted by customers on-line
- Internet mailing lists and discussion lists devoted to a particular product

Education and Research

- Conduct remote classes
- Access to a great variety of information such as educational programs developed by federal and non-profit organizations
- Researchers and students can exchange ideas and data worldwide
- Library databases on-line that you can connect to and perform searches and have the ability to view books and other materials on-line and print the pages you want

Political System

- Candidates running for election can take questions and present their viewpoints using Internet discussion groups and lists
- Elected officials can communicate to the public via the Net

LESSON 2: CONNECTING TO THE INTERNET

There are three ways to connect to the Internet:

- Connect your computer to a LAN whose server is an Internet host
- Dial into an Internet host using SLIP or PPP
- Dial into an on-line service that provides Internet services

The LAN and SLIP/PPP (Serial Line Internet Protocol/Point-to-Point Protocol) connection are direct connections, since you run TCP/IP (Transmission Control Protocol/Internet Protocol) on your computer with them. TCP/IP is the communications standard between hosts on the Internet. It defines the basic format of the data packets on the Internet. TCP/IP allows programs to exchange information with any other host on the Internet.

Many government agencies and educational institutions use their LAN for a direct connection to the Internet. To have a direct connection from home, you will probably want to use SLIP or PPP. SLIP allows your computer to use the Internet protocol over a serial link, such as a telephone line. PPP (Point to Point) also connects your computer to a network over a serial line. PPP protocol differs from SLIP in that it provides error detection and data compression. PPP is an official Internet data protocol and SLIP is not. SLIP is more commonly used because it was developed first and most UNIX machines include SLIP. Access to these connections can be gained through an Internet Service Provider.

Using an on-line service is an indirect connection. The on-line host is directly connected and you must use some type of terminal emulation software to access the services that the host provides. Prodigy, America Online, and CompuServe are a few of the popular on-line services.

The type of connection that you make will determine what you will be able to access on the Internet. Using an on-line commercial service will usually give you only the capability to send and receive Internet e-mail. If you want complete access to the Internet, your computer must be running TCP/IP. For either a SLIP/PPP or a third-party connection, you will need at minimum a 80386 25mhz processor with at least 4M of free RAM, a 14.4 or 28.8 kbps modem, and a data-quality phone line. With SLIP/PPP you will also need software that connects you to your Internet service provider. If your provider does not provide you with software, you can easily download a shareware program.

LESSON 3: E-MAIL

What is E-mail?

E-mail is short for electronic mail. It is a method of sending a message from a user on a computer to a recipient user on a destination host. The message is made up of a set of ***header lines***, which contain information describing how to deliver the message, and the ***message body***, which can contain any type of text.

E-mail is the most commonly used feature on the Internet and was one of its first applications. Almost, if not all, Internet users have used some type of E-mail access.

Basic Functions

E-mail applications have the same standard features in common, but they may use completely different commands to perform them. Most programs have a function that will allow you to read, save to a file, print, and reply to or forward your incoming mail messages. Other common capabilities include the ability to send your own messages, attach a file to your mail message, search for specific messages, and delete messages.

> The basic features of e-mail will not be discussed in this class. Only the Internet capabilities will be covered.

Addressing Internet Messages

To send mail to people outside of your local network, you must be familiar with Internet addresses. Every Internet address has three parts: a user name, an "at" sign (@), and the address of the user's mail server consisting of an organization name and domain name. Below is the sample format for an Internet address.

username@host.domain

The ***Username*** is a unique name assigned to a person when they register to become an e-mail user. It can consist of up to eight characters.

The "***@"*** sign denotes the end of the user name and the start of a host name.

Host is a computer system responsible for delivering and receiving e-mail for the user name. It often refers to the name of the organization.

Domain is a unique network location. It is based upon a set of numbers referred to as the IP (Internet Protocol) address. Every computer on the Internet is assigned an IP address. Since many of us have a tendency to remember names better than numbers, the domain name system was created to associate the numerical IP address with a name. The domain name and IP address can therefore be used interchangeably. The following is a list of how some domain names are broken down:

Domain Abbreviation	Description
EDU	Educational sites in the U.S.
COM	Commercial sites in the U.S.
GOV	U.S. Government sites
NET	Network administrative organizations
MIL	U.S. Military sites
ORG	U.S. private organizations that do not fit into other categories.
SU	Soviet Union
FR	France
CA	Canada
AU	Australia
UK	United Kingdom

Using LISTSERVS

What is a LISTSERV?

LISTSERV is a distribution list management package. LISTSERV servers maintain lists containing names and electronic mail addresses of computer users. This Internet system provides a convenient means for the exchange of ideas and information between list members.

LISTSERV lists provide, at minimum, two basic functions.

- Any member of a list can send e-mail messages addressed to the list, which the server will forward to all other members of the list.
- Any subscriber has the ability to send commands directly to the LISTSERV server.

Accessing LISTSERV

To use LISTSERV, you just need to have access to e-mail and the ability to send and receive messages to BITNET or INTERNET addresses. A LISTSERV list has the following two addresses associated with it.

Listname address - the address to which you send any message that intends to be read by the list subscribers (listname@address).

Administrative address **-** the address to which you send any commands or requests that affect your subscription to the list. The administrative address is usually a computer program (LISTSERV@address).

LISTSERV ignores the Subject line of the message. All commands you wish to give to the LISTSERV must be included in the body of the message. If you want to send several commands, each one must be on a separate line.

Finding Lists

There are many different types of discussion lists out on the Internet that you can choose to subscribe to. Each list contains users who share some type of common interest. Listed below are a few ways to find out what different lists are out there and what their lists' addresses are.

The List, List Global, or List Global String command

Internet Yellow Pages (included in several Internet books)
Word of Mouth
Announcements on other lists

LISTSERV List Commands

Lists command

Displays a list of all the local mailing lists served by a particular server.

Lists Global command

Displays a list of all the known local and remote mailing lists.

Lists Global <keyword(s)> command

Displays a list of all the local and remote mailing lists that have the keyword(s) somewhere in their title.

Subscribing and Unsubscribing to a List

Once you find a list that is of interest to you, you probably want to subscribe to it. In the exercise below, we are going to subscribe to a LISTSERV list called EDUEXC-L (Educational Excellence Information Exchange).

After you subscribe to a LISTSERV list, it will send you an acknowledgment message stating the purpose of the list and how to unsubscribe from the list. You should print and save this message for future reference.

Some LISTSERVs also want you to send back a confirmation message to them in order to complete your subscription. The purpose of this confirmation procedure is to verify that the address that the LISTSERV is about to add to the list is working properly. This is a common procedure for popular lists.

If you need to unsubscribe from a list you must send the UNSUBSCRIBE command to the LISTSERV address. The three different formats for this command are listed below.

Command	Description
UNSUBSCRIBE listname	This command removes you from the List that you specify.
UNSUBSCRIBE *	This command will unsubscribe you from every list at a particular LISTSERV address.
UNSUBSCRIBE GLOBAL	This command will unsubscribe you from every LISTSERV list in existence.

Setting Mail Distribution Options

When you join any discussion list, you will be assigned a default set of list options. You can use the following commands to change your personal settings. All of these commands must be sent directly to the LISTSERV address and be included in the body of the message. In all of the examples of commands described below, ***listname*** represents the particular discussion list that you are changing the options for. The first command turns the feature on and the second command turns it off.

CONCEAL Command

Once you receive your subscription notice your name as well as your Internet address are public record. It is very easy for a knowledgeable Internet user to snatch all of the names and addresses of the LISTSERV. To make sure that you do not receive any unwanted junk mail, you may want to use the CONCEAL command to have the LISTSERV conceal your name and address.

SET listname CONCEAL
SET listname NOCONCEAL

REPRO Command

The REPRO command instructs the LISTSERV to send you a copy of any e-mail postings that you send for the list members to read. This option is useful because it allows you to see that your message was distributed and saved.

SET listname REPRO
SET listname NOREPRO

DIGEST Command

If you are a LISTSERV subscriber who belongs to several lists, you probably receive hundreds of LISTSERV mail messages a day into your personal mailbox. The DIGEST command will instruct the LISTSERV to take all of the individual messages, that you receive in a 24 hour span, and wrap them into one large message and send that one message to you. The only disadvantage to using the DIGEST mode is that each message is now part of

one large e-mail message and you can no longer automatically reply to individual messages.

SET listname DIGEST
SET listname MAIL

NOMAIL Command

When you go away on vacation or business, you may wish to stop your LISTSERV mail. You will not receive any mail from the List until you enter the command that resumes it. This command does not affect your personal mail, just the mail you receive from the List.

SET listname NOMAIL
SET listname MAIL

LESSON 4: USENET

What is USENET?

USENET is a service offered on the Internet that supports discussion groups called newsgroups. Originally USENET was for the exchange of technical information but now there are newsgroups for social interests, hobbies, sports, etc. USENET currently supports about 8,000 different newsgroups.

USENET is similar to e-mail except that instead of sending messages to a single user, you send them to a newsgroup, where they are made available to all users who access that newsgroup. To read and post messages to a newsgroup, you need a special software application called a ***reader***. This software is usually public domain and available for the majority of operating systems.

Most newsgroups are not managed by anyone individually but are more or less a matter of joint control. Once a newsgroup is created, anything can be sent to the newsgroup which then becomes available for all Internet users to read.

Newsgroup Names

Newsgroup names are made up of several components separated by periods. The different components of the name describe the topic of discussion in the group, with the left-most component being the most general and the right-most name component being the most specific.

The left-most component of the name is referred to as the top-level hierarchy. These hierarchies are well established and new ones are rarely created. This identifier lets you know whether the newsgroup is technical, social, recreational, or some other category. The most commonly used hierarchies include the following:

Hierarchy	Description
alt	Unusual topics
bionet	Research biology
biz	Business
comp	Computers and related topics
k12	Education in grades 1 through 12
misc	Discussions that do not fit under any group
news	News about USENET itself
rec	Recreational topics
sci	Science other than research biology
soc	Social groups that are often ethically related

talk	Conversational topics

Following the main newsgroup identifier is the next level which usually gives the primary subject area. Usually there are more levels after this to break the subject into more specialized areas. This is done to prevent a newsgroup from receiving too many messages.

Some of the newsgroups that are especially helpful to new users are listed below.

news.announce.newusers	This group contains a list of all active newsgroups and their general subject.
news.newusers.questions	This group is where you can post questions concerning how USENET works.
news.announce.newsgroups	This group informs you of new or proposed newsgroups.
news.answers	Contains a list of Frequently Asked Questions (FAQs) and their answers from many different newsgroups.

Posting Articles

Since access time is not free to everyone, you should be careful not to post long and meaningless messages to a newsgroup. Also it is a good idea to prepare your message using your word processor. This way you can check for good spelling and grammar as well as proper sentence and paragraph construction before sending it over the network.

Most USENET newsgroups are ASCII-based with no formatting characters embedded. Use a 60-65 character line length and remove any special codes that your word processor may have added. Also, avoid uploading files such as graphics to a newsgroup that is text-based. Graphic files take up a considerable amount of space. Users who are paying by the line will not appreciate the high cost of downloading it.

You do not want to send a message to your favorite newsgroup to test to see if your message got posted or not. There are newsgroups specifically designed for this purpose. Two common ones are **misc.test** and **alt.test**. When they receive a posting, an automatic reply indicating success is sent.

Signature block

Most postings have a several line block at the end of the article that has the poster's name, e-mail address, and some type of witty identifier. Most newsreaders allow you to read a file from the hard disk and tack it to the end of your message.

When creating your signature file, you should limit it to three or four lines. All blocks should contain at least your name and E-mail address but can also contain your address and phone number. Graphics should be avoided. Clever sayings or quotes add a nice touch. A listing of good and very bad signature blocks is maintained in the newsgroup alt.fan.warlord. You should always include a signature block at the end of your message. Anonymous postings are not welcome on the USENET.

Distribution of your Message

You limit the distribution of an article by including a ***Distribution:*** line in the header of the message. The distribution header is usually generated automatically by your news posting mechanism using a default value provided by your news administrator You can edit this value if you wish.Commonly used distribution values are listed below. This list is not all inclusive, many other distributions exist for local cities and regions.

Value	Description
local	The article will not leave your host machine. This option is used often for groups that are private to your organization.
az	The article will be sent to all hosts in the state of Arizona. All states have their own code which is the same as the state's postal code.
us	This article will be sent to all hosts in the United States. Countries have their own distribution code, and it is usually the same as their postal country code.
na	The article will be posted to all machines in North America.

Replying to a Message

If your posting is a reply to a posted article, most news readers allow you to include the article you are replying to in your message. It is fine to keep the relevant portions but not the complete message unless it is very short.

Copyright Laws

You should not post anything to the Internet that is protected by copyright. Many users have been charged with copyright violations. Also, you need to be very cautious not to download copyrighted files and use them, because you will be held liable.

Netiquette

There are no formal rules governing what can be posted to a newsgroup. There are, however, generally accepted principles which have been adopted by the USENET community. The set of guidelines for the behavior of users on the USENET is referred to as ***netiquette***. There are dozens of netiquette guides available on the Internet. There is one entitled "Emily Post Answers Your Questions on Netiquette" accessible in the **news.announce.newusers** newsgroup.

Below is a table listing some Dos and Don'ts for posting messages on the Internet.

DON'TS	DO'S
DON'T reply to a posting without including a description of what you are responding to and who said it.	DO paraphrase the message that you are replying to. Delete all its header lines except for the From: line.
DON'T send lines longer than 70 characters. Some mail editors or newsreaders truncate extra characters.	DO find out how your mail editor inserts line breaks.
DON'T send a message in all CAPS. Capitalized messages are harder to read.	Do use normal capitalization. Also insert a blank line between paragraphs to make the message easier to read.
DON'T rely on the ability of your readers to tell the difference between serious statements and sarcasm.	Use ***emotions*** to modify the tone of a posting. Some examples are as follows: **:-)** happy **:-(** sad **:-o** wow! Use **all caps** to greatly emphasize something and show light emphasis by surrounding your text with **asterisks**.
DON'T use excessive abbreviations in your message. They can make your posting hard to read.	To save time and make postings shorter, use abbreviations to represent phrases. Some commonly used ones on the Internet are: **IMHO** In my humble opinion **BTW** By the way **OTOH** On the other hand **ROTFL** Rolling on the floor laughing
DON'T post messages that might offend other nationalities or use sayings that only Americans are	DO remember that the Internet is international.

familiar with.	

LESSON 5: TELNET

What is Telnet?

Telnet is a program that allows you to log into a remote computer directly through the Internet. When you connect to a remote host, your PC and keyboard act as though they are directly connected to that host, allowing you access to all the applications and services that it offers.

The Telnet protocol translates input from your keyboard into a format that is usable at the remote host as well as translates output from the remote host into a format suitable for display on your PC. This process is called ***terminal emulation***.

General Overview

There are fewer anonymous or public Telnet sites than there are anonymous FTP sites, because with Telnet the user is logging on to another machine as a real user and not just to copy files as in FTP. Also, the sites that do allow the general public to access their hosts generally limit the access of the public user by restricting their access to a limited menu. For the most part, the information that cannot be accessed would be of little or no interest to the average user. The menu access also saves you a lot of time when you are searching for services, databases or programs. Usually there is also some type of on-line help at the other site to assist you.

Addressing Criteria

In order to run Telnet, you need to know the address or ***host name*** of the computer that you wish to connect to. The host name is very similar to an e-mail address. If the E-mail address is student@uhd.com then the host name is uhd.com. In addition to its host name, each computer has a numerical name, known as the IP address, that means the same thing as its host name. The IP address is a set of four numbers separated by periods such as 11.17.20.94.

You may also find host names and IP addresses with numbers attached to the end of them such as fedword.gov 4242. These numbers are referred to as ***port*** numbers. Port numbers are used to tell the remote computer which server or program you want it to access. An Internet organization assigns port numbers to specific Internet uses. These standard port assignments are used by host computers throughout the Internet.

When using Telnet, you can use the host name or IP address for the computer's address. The IP address is generally more reliable than the host name since computer operators sometimes change the names of the machines that they operate. Sometimes, even when you are using the correct

host name, you may not be able to access the remote machine. There are Name Server computers throughout the Internet that translate the host name of the computer into its equivalent IP address. When a name server crashes, it is very difficult or impossible to telnet to another computer using the host name.

Establishing a Remote Connection

There are several remote login applications used to telnet. Each has its own specific features, but all will have some standard functions.

To begin a Telnet session, perform the following steps:

- Open a Telnet application.
- Enter the **host name** or **IP address** of the Telnet site that you wish to access.
- Click on the **Connect** button.

Working in a Session

While you are using a remote machine, you have several options available. The Options and their Functions are listed below.

Option	Function
New	Opens a new session.
Open	Opens a saved session.
Save	Saves current session under the same name.
Save As	Saves a new current session or a previous one under a different name.
Close	Closes current session.
Delete	Deletes a session from the list of sessions saved.
Capture to File	Captures the screen output to a file.
Print Screen	Prints the screen output.
Print Buffer	Prints the entire scroll buffer.
Printer Setup	Allows you to change the setup configurations for your printer.
Exit on Disconnect	Enables and Disables the option to exit TNVT when your Telnet connection closes.
Exit	Exits TNVT and closes current session.

Ending a Session

When you finish working in your remote session, you have several different options that you can use to end the session. They are as follows:

Action	Command
To save and reuse the session	Save or Save As
End the current session but remain in Telnet	Close
End the current session and exit from Telnet	Exit

Interesting Telnet Sites

Hahn and Stout's "The Internet Yellow Pages" has over four hundred pages of listings for various e-mail, LISTSERV, Internet mailing list, USENET, telnet, FTP, Gopher, and finger sites around the world. Listed below are some of the most interesting telnet sites.

The listing below is organized alphabetically by different categories. The address, and the password required is given for each site. If a site does not let you in, it is probably because that site is having some problems. If this happens, just pick another site.

AGRICULTURE

PENpages

International Food & Nutrition Database, National Family Database, The 4-H Youth Development Database, agricultural and weather statistics, market news, newsletters, and drought information. This resource is provided by the Penn State College of Agricultural Sciences.

Address: psupen.psu.edu

Login: Enter the two-letter abbreviation for your state (e.g., PA)

BBSs (BULLETIN BOARD SYSTEMS)

FedWorld

FedWorld BBS is sponsored by the National Technical Information Service (NTIS) and is tasked by Congress to help disseminate vast amounts of scientific and technical information along with other, non-technical information. As a central point of connectivity, NTIS FedWorld offers access to thousands of files across a wide range of subject areas. You can find information ranging from environmental protection to small business.

Address: fedworld.gov

BUSINESS AND FINANCE

European Commission Host Organization

ECHO offers scientific, language, business, and research databases in any of 8 languages.

Address: echo.lu

Login: echo

ECONOMICS

Economic Bulletin Board

The Economic Bulletin Board is operated by the U.S. Department of Commerce. It has 20 file areas that contain current economic and trade information, such as economic indicators, U.S. Treasury auction results and employment statistics.

Address: ebb.stat-usa.gov

Login: guest

EDUCATION:

Higher Education Resources and Opportunities (HERO)

A 24-hour, online database service that provides access to valuable information from colleges and universities on scholarships, grants, fellowships, conferences, faculty and student development, research opportunities, partnership initiatives, and other opportunities for minorities and women

Address: fedix.fie.com

National Referral Central Master File

The National Referral Center Resources File (NRCM) provides thousands of descriptions of organizations qualified and willing to answer questions and provide information on many topics in science, technology and the social sciences. The file is updated weekly, and each entry in the file lists the name of the organization, mailing address and other information.

Address: locis.loc.gov

Choice: Organizations

ENVIRONMENT

EnviroNet

A menu-driven, user-friendly resource with environmental data in textual, graphic and tabular form.

Address: envnet.gsfc.nasa.gov

Login: envnet

Password: henniker

GEOGRAPHY

Global Land Information System

GLIS is an interactive computer system, developed by US Geological Survey for scientist seeking sources of information about the earth's land surfaces.

Address: glis.cr.usgs.gov

Login: guest

GOVERNMENT: CONGRESS
Congressional Legislation
These files track and describe legislation (bills and resolutions) introduced in Congress, from 1973 (93rd Congress) to the current Congress (104th). Each file covers a separate Congress.
Address: locis.loc.gov
Password: Federal Legislation

HEALTH
AIDS Information
AIDS statistics, including daily summaries from newspaper articles, details of those at risk, and the full text of Aids Treatment News.
Address: health.umt.edu
Login: health

INTERNET
InterNIC Information Services
Find information about people, organizations and resources on the Internet. find & retrieve documents from all over the world with lookups by name or keyword.
Address: ds.internic.net
Address: rs.internic.net

Internet Services and resources
The LIBS system is a comprehensive collection of Internet resources presented in an easy-to-use menu-driven interface. The system operates like a bulletin board, but offers direct access to remote resources
Address: garam.kreonet.re.kr
Login: nic

LIBRARIES
Carl System
A computerized network of library systems. Search for keywords from any of five databases (library catalogs, current articles, information databases, other library systems, library and system news).
Address: pac.carl.org

MATHEMATICS
E-Math
BBS of the American Mathematical society.
Address: e-math.ams.com
Login: e-math
Password: e-math

OCEANOGRAPHY
Oceanic (Ocean Network Info Center)
Oceanic datasets, research ship schedules and Information, and science and program info.
Address: delocn.udel.edu
Login: info

SPACE
NASA Spacelink
History, current events, projects and plans at NASA.
Address: spacelink.msfc.nasa.gov

TECHNOLOGY
Hot off the Tree (HOTT)
A weekly publication containing excerpts and summaries of information technology articles.
Address: melvyl.ucop.edu
Login: <your terminal type>
Comment: For the telnet site, type "show hott" after logging in.

LESSON 6: FILE TRANSFER PROTOCOL (FTP)

What is FTP?

FTP is an Internet tool that allows you to access remote computers and transfer files between your PC and another computer on the network or between two remote hosts. In addition to its uploading and downloading feature, most FTP applications also let you copy, read, delete, rename, and print files that reside on other computers.

Client/Server Relationship

The FTP service is an example of a ***client/server*** system. The term ***client*** refers to an program that runs on your local computer that enables you to request a service from a program on a remote computer called a ***server***. The client on your machine takes your commands and converts them into requests for information from the FTP server running on a remote machine.

Conducting an FTP session

While all the FTP clients perform the same functions, they all use different commands to do it. Below are the basic steps in an FTP session.

- Launch your FTP client
- Type the address of the remote machine
- Identify yourself to the remote site
- Enter a password for the remote site
- Browse the directory listing for files
- Change the transfer mode if necessary
- Get the files that you want
- Quit the session

Anonymous FTP

If you identify yourself to the remote machine as ***anonymous*** you do not need an account on the remote machine. Anonymous FTP allows any user access to selected files on a remote machine. If the site you wish to access supports Anonymous FTP, then you can use anonymous as your username and your Internet e-mail address for your password. Your Internet e-mail address should be used as your password so that the remote site has a means of tracking who has accessed their system.

Anonymous FTP servers are one of the major sources for distributing software and information across the Internet. Most of the software available from

Anonymous FTP sites is free and is available for many different environments such as UNIX, Windows, and Macintosh.

FTP File Compression

Most of the files at FTP sites are compressed. Once you FTP a compressed file, you must know which compression method was used to compress it so that you can uncompress it.

Some FTP directories have a READ.ME file that shows an index of all the files that are in that directory. Some READ.ME files mention the method used for compressing the files and where you can get a free copy of the software. If the compression method is not given, then you can look at the extension of the file to determine the software needed to uncompress the file.

The following table lists some of the most popular file extensions that you might encounter when you are browsing an FTP site.

Popular FTP File Extensions

File Extension	Transfer Mode	Uncompress Package	Comments
.txt	ASCII		This type of file is a document not a program and does not need to be uncompressed.
.ps	ASCII		A postscript document.
.doc	ASCII		Text file or it might be a Microsoft Word for Windows document which is a binary file.
.Z	Binary	uncompress	Indicates a UNIX compression method. The command to uncompress is: **uncompress <filename.Z>**. The program u16.zip is a MS-DOS program that allows you to download .Z files and uncompress them. The equivalent Mac application is called MacCompress.
.zip	Binary	PKZip or Zip/Unzip	Indicates that the file has been compressed with an MS-DOS compression program called PKZIP.
.zoo	Binary	zoo	This is a UNIX and MS-DOS file compression format. The program zoo can be used to uncompress.
.sit	Binary	Stuffit	A Macintosh format that requires the StuffIt program.
.ARC	Binary	ARC or ARCE	An MS-DOS format which requires the ARC or ARCE programs.
.LHZ	Binary	LHARC	An MS-DOS format which requires the LHARC program.

Establishing an FTP session

Before you start an FTP session, you should find out the following information.

- The hostname or IP address of the remote machine that you wish to use for file transfers.
- The appropriate account information. If you are accessing an anonymous FTP server then the Username is ***anonymous*** and your password is your ***Internet address***.

Downloading and Uploading Files

After you establish a session and customize it, then you are ready to transfer files between the systems. Before you begin copying files, you may wish to change your default directory or even create a new directory for them. Both options are choices available under the Commands menu.

LESSON 7: ARCHIE

What is Archie?

Archie is a service which helps users to locate files and directories on anonymous FTP servers anywhere on the Internet.

Archie was the first information retrieval system developed on the Internet. It is simply a collection of servers. Each server is responsible for keeping track of file locations in several different anonymous FTP sites. The Archie servers all communicate with each other and each month they merge their information into one huge database. The updated database then is redistributed onto each server.

There are now more than one thousand anonymous FTP sites that participate in this service. The ARCHIE database currently contains more than 2.5 million unique filenames.

Locating FTP files

There are three ways that you can access Archie:

- Using an Archie client that is accessible on your local machine
- Through a telnet connection directly to the Archie server
- Sending an e-mail letter directly to the Archie server

The following table lists a few of the Archie servers that you can access using telnet. To login you must use the username **Archie**.

Archie Server Sites	
Host Name	**Location**
archie.au	Australia
archie.au	Australia
archie.edvz.uni-linz.ac.at	Austria
archie.univie.ac.at	Austria
archie.uqam.ca	Canada
archie.cs.mcgill.ca	Canada
archie.funet.fi	Finland
archie.univ-rennes1.fr	France
archie.th-darmstadt.de	Germany
archie.ac.il	Israel
archie.unipi.it	Italy
archie.wide.ad.jp	Japan
archie.hana.nm.kr	Korea

Archie Server Sites	
Host Name	**Location**
archie.sogang.ac.kr	Korea
archie.uninett.no	Norway
archie.rediris.es	Spain
archie.luth.se	Sweden
archie.switch.ch	Switzerland
archie.ncu.edu.tw	Taiwan
archie.doc.ic.ac.uk	United Kingdom
archie.hensa.ac.uk	United Kingdom
archie.unl.edu	USA (NE)
archie.internic.net	USA (NJ)
archie.rutgers.edu	USA (NJ)
archie.ans.net	USA (NY)
archie.sura.net	USA (MD)

LESSON 8: GOPHER

What is Gopher?

Gopher is a menu-driven application that allows you to search for and retrieve files from Gopher servers anywhere on the Internet. Most Gopher servers have links to other Gopher servers resulting in a network of interconnected libraries referred to as the global Gopher web or ***Gopherspace***.

The name Gopher was derived from the school mascot of the University of Minnesota where Gopher was developed. Gopher is also a clever name for this application since it actually "goes for" the information that you want.

Gopher allows you to browse different systems so you do not need to know where something actually is before you search for it. After Gopher gets the information you want, it presents it in a structured hierarchical list format. This makes even complex information easy to access and retrieve.

Accessing Gopher

There are three ways to use Gopher.

- Through a Gopher client available at your site (graphical interface)
- Through a Telnet connection to a publicly-accessible Gopher site
- Through e-mail

When you first get into Gopher, your client's root menu will be displayed. Each root menu is different but they all have the same basic stuff.

The icons at the beginning of each menu item represents the type of the Gopher item and the text is the title of the item.

Gopher Sites in the USA
Consutlant.micro.umn.edu
Seymour.md.gov
Gopher.msu.edu
Twosocks.ces.ncsu.edu
Cat.ohiolink.edu

LESSON 9: VERONICA

What is Veronica?

The name Veronica stands for Very Easy, Rodent-Oriented, Net-Wide Index to Computerized Archives. It is a service that keeps an index of all the titles of all the articles in Gopherspace.

Performing a Veronica Search

Veronica only searches for particular files and directories. It does not perform a full text search of the contents of the articles. You are able to access Veronica directly through your Gopher client. There is not a separate Veronica client. You will be asked to enter a keyword to search on and Gopher will then display a menu of items found relating to that specification.

LESSON 10: WAIS, PING, FINGER

What is WAIS?

WAIS stands for Wide Area Information Server. It is pronounced ***ways***. This system was designed to retrieve information from networks by looking into the contents of documents, as opposed to the titles, like that of Archie and Veronica. You would begin by entering a group of words that describe what you are looking for, and WAIS will look through all specified libraries for your request. WAIS can be accessed through Gopher or through a windows-based WAIS interface.

What is Ping?

Ping is a UNIX command used to verify that your computer is connected to the network. Ping can also be accessed through a windows-based Ping interface. When this command is used, it will send packets to another host that is supposed to echo them back. You may also use Finger or Telnet to verify a response.

What is Finger?

Finger is a UNIX command used to find out who is logged into the network. Finger can find a particular user, or get a list of all users. If you know a user's name, you may be able to use finger to figure out their e-mail address.

LESSON 11: CHAT SESSION

What is a Chat Session?

A Chat session lets you talk to several people at a time through the computer. These conversations take place with other users all over the world. When you log onto a chat session, you will see the comments from other users on the screen. Determine what nickname you will use, and join in the conversation by just typing. As you type, the characters appear on the screens of those logged on to your chat session. Beware of what you type, all other parties will see it.

The most widely used chat program is called Internet Relay Chat (IRC). If your network does not have this, then you can use telnet to reach a public IRC server in order to chat. These servers appear and disappear frequently because of the amount of usage (it hogs up resources). Access the USENET newsgroup alt.irc to find current IRC servers.

SUMMARY

Internet	A collection of tens of thousands of computers talking to one another.
E-Mail	A method of sending messages from a user on a computer to a recipient user on a destination computer.
LISTSERV servers	Maintains lists containing names and electronic mail addresses of computer users.
USENET	A service offered on the Internet that supports discussion groups.
Telnet	A program that allows you to log into a remote computer directly.
FTP	Allows you to access remote computers and transfer files between your PC and another computer on the network or between two remote hosts.
Archie	A service which helps users to locate files and directories on anonymous FTP servers.
Gopher	Allows you to search for and retrieve files from Gopher servers anywhere on the Internet.
Veronica	A service that keeps an index of all the titles of all the articles in GopherSpace.
WAIS	Retrieves information from networks by looking into the contents of documents.
Ping	A command that verifies your computer in connected.
Finger	A command used to find out who is logged into the network.
Chat Session	Lets you talk to several people at a time through the computer.